CASE A-22210/US/A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF
JEAN-PIERRE WOLF ET AL
APPLICATION NO: Not Yet Assigned
FILED: Concurrently Herewith
FOR: ORGANOMETALLIC
MONOACYLALKYLPHOSPHINES

Group Art Unit:
Examiner:

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Applicants present the instant Preliminary Amendment for entry and consideration in order to place the instant continuation application in better condition for examination on its merits and for allowance.

The Commissioner is authorized to charge any fee due, or credit any overcharge, as a result of this Preliminary Amendment to Deposit Account No. 03-1935.

Please amend the above-identified patent application, without prejudice, as follows:

IN THE SPECIFICATION:

IN THE CLAIMS:

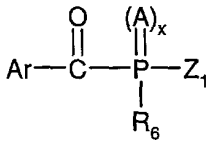
Amend claims 6 and 12 as follows:

6. (amended) A method for the preparation of mono- or bisacylphosphines, mono- or bisacylphosphine oxides or mono- or bisacylphosphine sulfides comprising reacting a compound of formula I according to claim 1.

12. (amended) A photocurable composition comprising

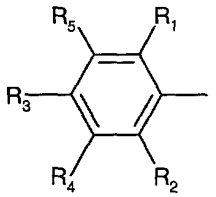
(a) at least one ethylenically unsaturated photopolymerizable compound and

(b) at least one compound of the formula II according to claim 2 or at least one compound

according to formula III  (III), in which

A is O or S;

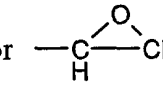
x is 0 or 1;

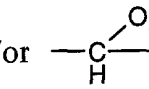
Ar is a group  ; or Ar is cyclopentyl, cyclohexyl, naphthyl, anthracyl, biphenylyl or an O-, S- or N-containing 5- or 6-membered heterocyclic ring, where the radicals cyclopentyl, cyclohexyl, naphthyl, anthracyl, biphenylyl and 5- or 6-membered heterocyclic ring are unsubstituted or substituted by halogen, C_1-C_4alkyl and/or C_1-C_4alkoxy;

$\mathbf{R_1}$ and $\mathbf{R_2}$ independently of one another are C_1-C_{20}alkyl, OR_{11}, CF_3 or halogen;

$\mathbf{R_3}$, $\mathbf{R_4}$ and $\mathbf{R_5}$ independently of one another are hydrogen, C_1-C_{20}alkyl, OR_{11} or halogen;

or in each case two of the radicals R_1, R_2, R_3, R_4 and R_5 together form C_1-C_{20}alkylene which can be interrupted by O, S or $-NR_{14}$;

R_6 is C_1-C_{24}alkyl, unsubstituted or substituted by C_5-C_{24}cycloalkenyl, phenyl, CN, $C(O)R_{11}$, $C(O)OR_{11}$, $C(O)N(R_{14})_2$, $OC(O)R_{11}$, $OC(O)OR_{11}$, $N(R_{14})C(O)N(R_{14})$, $OC(O)NR_{14}$, $N(R_{14})C(O)OR_{11}$, cycloalkyl, halogen, OR_{11}, SR_{11}, $N(R_{12})(R_{13})$ or  ;

C_2-C_{24}alkyl which is interrupted once or more than once by nonconsecutive O, S or NR_{14} and which is unsubstituted or substituted by phenyl, OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, CN, $C(O)R_{11}$, $C(O)OR_{11}$, $C(O)N(R_{14})_2$ and/or  ;

C_2-C_{24}alkenyl which is uninterrupted or interrupted once or more than once by nonconsecutive O, S or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$;

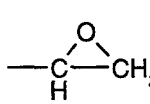
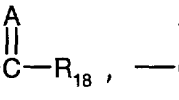
C_5-C_{24}cycloalkenyl which is uninterrupted or interrupted once or more than once by non-consecutive O, S or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$;

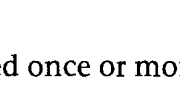
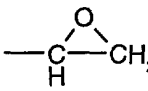
C_7-C_{24}arylalkyl which is unsubstituted or substituted on the aryl group by C_1-C_{12}alkyl, C_1-C_{12}alkoxy or halogen;

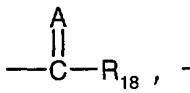
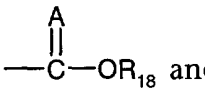
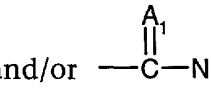
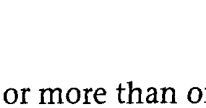
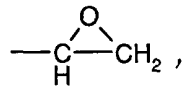
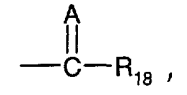
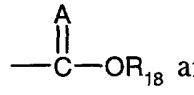
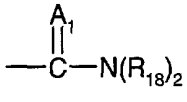
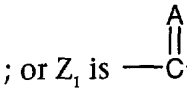
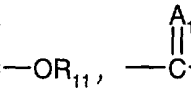
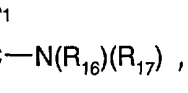
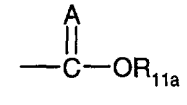
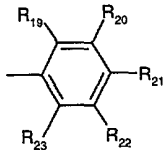
C_4-C_{24}cycloalkyl which is uninterrupted or interrupted once or more than once by O, S and/or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$; or C_8-C_{24}arylcycloalkyl or C_8-C_{24}arylcycloalkenyl;

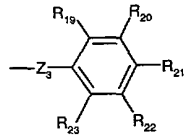
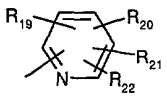
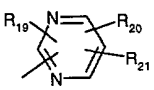
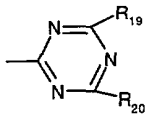
R_{11} is H, C_1-C_{20}alkyl, C_2-C_{20}alkenyl, C_3-C_8cycloalkyl, phenyl, benzyl or C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH;

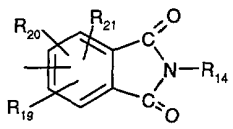
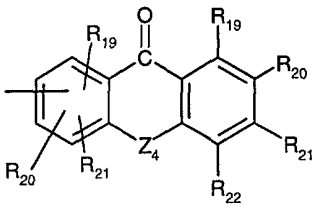
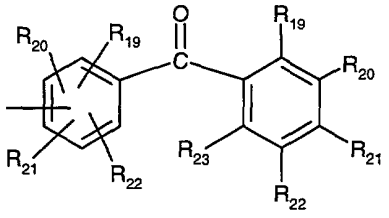
R_{12} and R_{13} independently of one another are hydrogen, C_1-C_{20}alkyl, C_3-C_8cycloalkyl, phenyl, benzyl or C_2-C_{20}alkyl, which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH; or R_{12} and R_{13} together are C_3-C_5alkylene which is uninterrupted or interrupted by O, S or NR_{14};

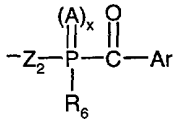
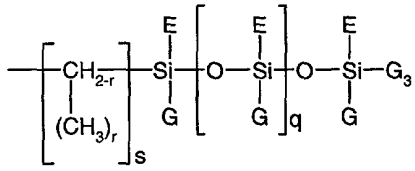
Z_1 is C_1-C_{24}alkyl, which is unsubstituted or substituted once or more than once by OR_{15}, SR_{15}, $N(R_{16})(R_{17})$, phenyl, halogen, CN, -N=C=A,  ,  ,

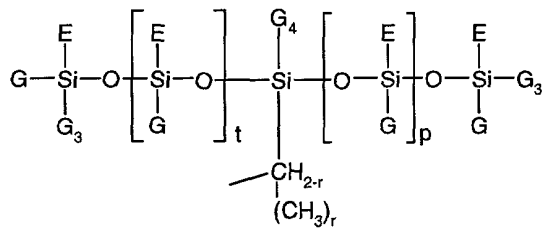
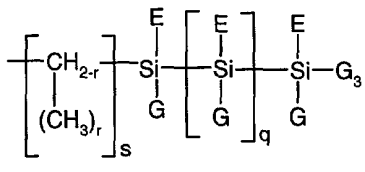
and/or  or Z_1 is C_2-C_{24}alkyl which is interrupted once or more than once by O, S or NR_{14} and which can be substituted by OR_{15}, SR_{15}, $N(R_{16})(R_{17})$, phenyl, halogen,  ,

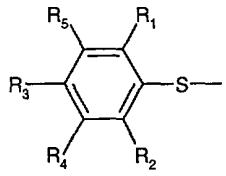
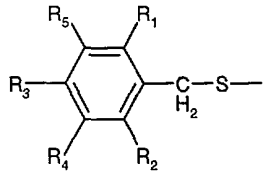



and/or  ; or Z_1 is C_1-C_{24}alkoxy, which is substituted once or more than once by phenyl, CN, -N=C=A, 


and/or  ; or Z_1 is 


or  ; or Z_1 is unsubstituted C_3-C_{24}cycloalkyl or C_3-C_{24}cycloalkyl substituted by C_1-C_{20}alkyl, OR_{11}, CF_3 or halogen; unsubstituted C_2-C_{24}alkenyl or C_2-C_{24}alkenyl substituted by C_6-C_{12}aryl, CN, $(CO)OR_{15}$ or $(CO)N(R_{18})_2$; or Z_1 is C_3-C_{24}cycloalkenyl or is one of the radicals  (f),

 (g),  (h),  (i),  (k),

 (l),  (m),  (n),

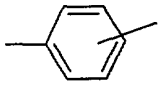
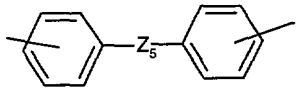
 (o),  (p),

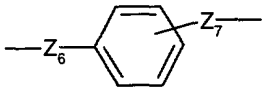
 (q),  (t),

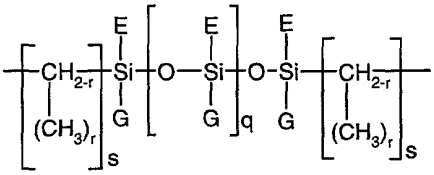

(v) or 
(w); or Z_1 is C_1-C_{24}alkylthio, in which the alkyl radical is uninterrupted or interrupted once or more than once by nonconsecutive O or S, and is unsubstituted or substituted by OR_{15}, SR_{15} and/or halogen; with the proviso that Z_1 and R_6 are not identical;

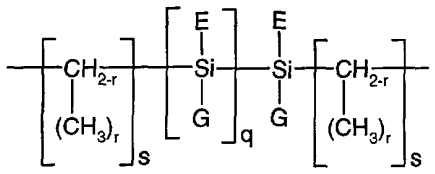
A_1 is O, S or NR_{18a};

Z_2 is C_1-C_{24}alkylene; C_2-C_{24}alkylene interrupted once or more than once by O, S or NR_{14}; C_2-C_{24}alkenylene; C_2-C_{24}alkenylene interrupted once or more than once by O, S or NR_{14}; C_3-C_{24}cycloalkylene; C_3-C_{24}cycloalkylene interrupted once or more than once by O, S or NR_{14}; C_3-C_{24}cycloalkylene;C_3-C_{24}cycloalkenylene interrupted once or more than once by O, S or NR_{14}; where the radicals C_1-C_{24}alkylene, C_2-C_{24}alkylene, C_2-C_{24}alkenylene, C_3-C_{24}cycloalkylene and C_3-C_{24}cycloalkenylene are unsubstituted or are substituted by OR_{11}, SR_{11}, $N(R_{12})(R_{13})$ and/or halogen;

or Z_2 is one of the radicals  , 

or  , where these radicals are unsubstituted or are substituted on the aromatic by C_1-C_{20}alkyl; C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH; OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, phenyl, halogen, NO_2, CN, (CO)-OR_{11}, (CO)-R_{11}, (CO)-$N(R_{12})(R_{13})$, SO_2R_{24}, OSO_2R_{24}, CF_3 and/or CCl_3;

or Z_2 is a group  (r) or



(u);

Z_3 is CH_2, CH(OH), $CH(CH_3)$ or $C(CH_3)_2$;

Z_4 is S, O, CH_2, C=O, NR_{14} or a direct bond;

Z_5 is S, O, CH_2, $CHCH_3$, $C(CH_3)_2$, $C(CF_3)_2$, SO, SO_2, CO;

Z_6 and Z_7 independently of one another are CH_2, $CHCH_3$ or $C(CH_3)_2$;

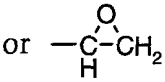
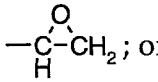
r is 0, 1 or 2;

s is a number from 1 to 12;

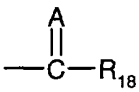
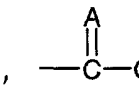
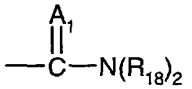
q is a number from 0 to 50;

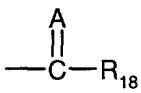
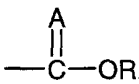
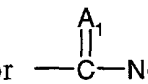
t and **p** are each a number from 0 to 20;

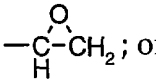
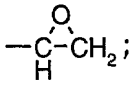
E, **G**, G_3 and G_4 independently of one another are unsubstituted C_1-C_{12}alkyl or C_1-C_{12}alkyl substituted by halogen, or are unsubstituted phenyl or phenyl substituted by one or more C_1-C_4alkyl; or are C_2-C_{12}alkenyl;

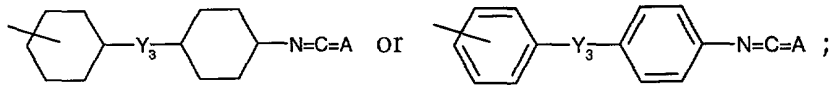
R_{11a} is C_1-C_{20}alkyl substituted once or more than once by OR_{15} or  ; or is C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and is unsubstituted or substituted once or more than once by OR_{15}, halogen or  ; or R_{11a} is C_2-C_{20}alkenyl, C_3-C_{12}alkynyl; or R_{11a} is C_3-C_{12}cycloalkenyl which is substituted once or more than once by halogen, NO_2, C_1-C_6alkyl, OR_{11} or $C(O)OR_{18}$; or C_7-C_{16}arylalkyl or C_8-C_{16}arylcycloalkyl;

R_{14} is hydrogen, phenyl, C_1-C_{12}alkoxy, C_1-C_{12}alkyl or C_2-C_{12}alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH;

R_{15} has one of the meanings given for R_{11} or is a radical  ,  or  ;

R_{16} and R_{17} independently of one another have one of the meanings given for R_{12} or are a radical  ,  or  ;

R_{18} is hydrogen, C_1-C_{24}alkyl, C_2-C_{12}alkenyl, C_3-C_8cycloalkyl, phenyl, benzyl; C_2-C_{20}alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH; R_{18a} and R_{18b} independently of one another are hydrogen; C_1-C_{20}alkyl, which is substituted once or more than once by OR_{15}, halogen, styryl, methylstyryl, -N=C=A or  ; or C_2-C_{20}alkyl, which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted once or more than once by OR_{15}, halogen, styryl, methylstyryl or  ; or R_{18a} and R_{18b} are C_2-C_{12}alkenyl; C_5-C_{12}cycloalkyl, which is substituted by -N=C=A or -CH_2-N=C=A and is additionally unsubstituted or substituted by one or more C_1-C_4alkyl; or R_{18a} and R_{18b} are C_6-C_{12}aryl, unsubstituted or substituted once or more than once by halogen, NO_2, C_1-C_6alkyl, C_2-C_4alkenyl, OR_{11}, -N=C=A, -CH_2-N=C=A or $C(O)OR_{18}$; or R_{18a} and R_{18b} are C_7-C_{16}arylalkyl; or R_{18a} and R_{18b} together are C_8-C_{16}arylcycloalkyl; or R_{18a} and R_{18b} independently of one another are



Y_3 is O, S, SO, SO_2, CH_2, $C(CH_3)_2$, $CHCH_3$, $C(CF_3)_2$, (CO), or a direct bond;

R_{19}, R_{20}, R_{21}, R_{22} and R_{23} independently of one another are hydrogen, C_1-C_{20}alkyl; C_2-C_{20}alkyl, which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH; or R_{19}, R_{20}, R_{21}, R_{22} and R_{23} are OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, NO_2, CN, SO_2R_{24}, OSO_2R_{24}, CF_3, CCl_3, halogen; or phenyl which is unsubstituted or substituted once or more than once by C_1-C_4alkyl or C_1-C_4alkoxy;

or in each case two of the radicals R_{19}, R_{20}, R_{21}, R_{22} and R_{23} together form C_1-C_{20}alkylene which is uninterrupted or interrupted by O, S or -NR_{14};

R_{24} is C_1-C_{12}alkyl, halogen-substituted C_1-C_{12}alkyl, phenyl, or phenyl substituted by OR_{11} and/or SR_{11};

with the proviso that R_6 and Z_1 are not identical,

as photoinitiator.

Remarks

Upon entry of the instant Preliminary Amendment, claims 1-18 are pending. Claim 6 has been converted from a "use" claim to a more conventional process format. Claim 12 has been amended to provide reference or subject matter for formulae II and III. The amendments are primarily a matter of form. No new matter has been added.

In view of the foregoing amendments, Applicants aver that the instant claims are now in better condition for examination on the merits. Early favorable action is respectfully solicited. If minor amendments will further prosecution, Applicants request that the Examiner contact the undersigned representative.

Respectfully submitted

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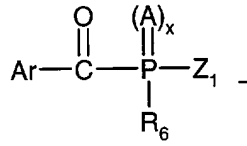
APPENDIX - MARKED UP CLAIMS

6. (amended) A method~~The use of compounds of the formula I as starting materials~~ for the preparation of mono- or bisacylphosphines, mono- or bisacylphosphine oxides or mono- or bisacylphosphine sulfides comprising reacting a compound of formula I according to claim 1.

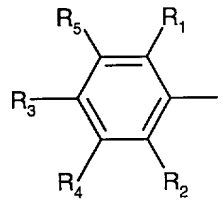
12. (amended) A photocurable composition comprising

(a) at least one ethylenically unsaturated photopolymerizable compound and

(b) at least one compound of the formula II according to claim 2 or at least one compound according to formula III  (III), in which

A is O or S;

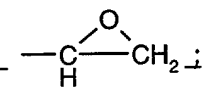
x is 0 or 1;

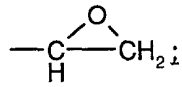
Ar is a group  ; or Ar is cyclopentyl, cyclohexyl, naphthyl, anthracyl, biphenylyl or an O-, S- or N-containing 5- or 6-membered heterocyclic ring, where the radicals cyclopentyl, cyclohexyl, naphthyl, anthracyl, biphenylyl and 5- or 6-membered heterocyclic ring are unsubstituted or substituted by halogen, C_1-C_4alkyl and/or C_1-C_4alkoxy;

R_1 and R_2 independently of one another are C_1-C_{20}alkyl, OR_{11}, CF_3 or halogen;

R_3, R_4 and R_5 independently of one another are hydrogen, C_1-C_{20}alkyl, OR_{11} or halogen;

or in each case two of the radicals R_1, R_2, R_3, R_4 and R_5 together form C_1-C_{20}alkylene which can be interrupted by O, S or -NR_{14};

R_6 is C_1-C_{24}alkyl, unsubstituted or substituted by C_5-C_{24}cycloalkenyl, phenyl, CN, $C(O)R_{11}$, $C(O)OR_{11}$, $C(O)N(R_{14})_2$, $OC(O)R_{11}$, $OC(O)OR_{11}$, $N(R_{14})C(O)N(R_{14})$, $OC(O)NR_{14}$, $N(R_{14})C(O)OR_{11}$, cycloalkyl, halogen, OR_{11}, SR_{11}, $N(R_{12})(R_{13})$ or  ;

C_2-C_{24}alkyl which is interrupted once or more than once by nonconsecutive O, S or NR_{14} and which is unsubstituted or substituted by phenyl, OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, CN, $C(O)R_{11}$, $C(O)OR_{11}$, $C(O)N(R_{14})_2$ and/or  ;

C_2-C_{24}alkenyl which is uninterrupted or interrupted once or more than once by nonconsecutive O, S or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$;

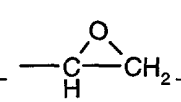
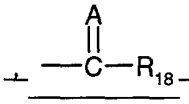
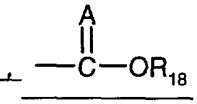
C_5-C_{24}cycloalkenyl which is uninterrupted or interrupted once or more than once by non-consecutive O, S or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$;

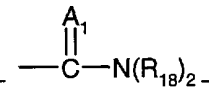
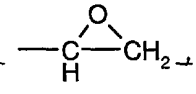
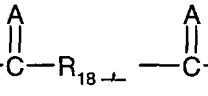
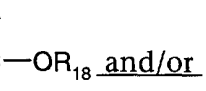
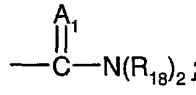
C_7-C_{24}arylalkyl which is unsubstituted or substituted on the aryl group by C_1-C_{12}alkyl, C_1-C_{12}alkoxy or halogen;

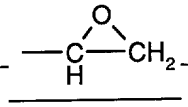
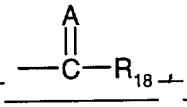
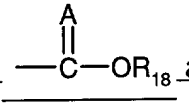
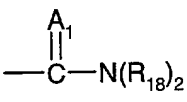
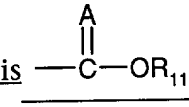
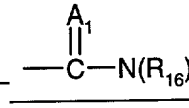
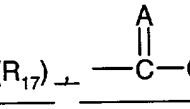
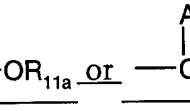
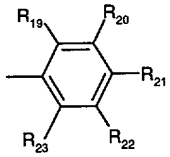
C_4-C_{24}cycloalkyl which is uninterrupted or interrupted once or more than once by O, S and/or NR_{14} and which is unsubstituted or substituted by OR_{11}, SR_{11} or $N(R_{12})(R_{13})$; or C_8-C_{24}arylcycloalkyl or C_8-C_{24}arylcycloalkenyl;

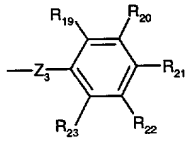
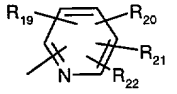
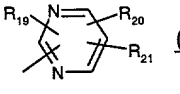
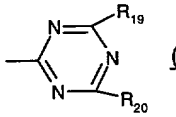
R_{11} is H, C_1-C_{20}alkyl, C_2-C_{20}alkenyl, C_3-C_8cycloalkyl, phenyl, benzyl or C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH;

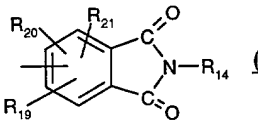
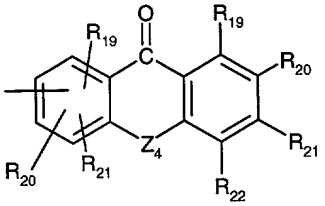
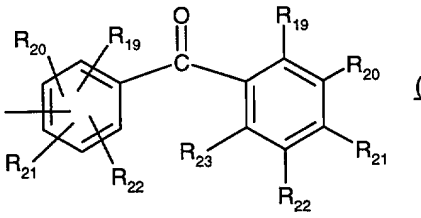
R_{12} and R_{13} independently of one another are hydrogen, C_1-C_{20}alkyl, C_3-C_8cycloalkyl, phenyl, benzyl or C_2-C_{20}alkyl, which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH; or R_{12} and R_{13} together are C_3-C_5alkylene which is uninterrupted or interrupted by O, S or NR_{14};

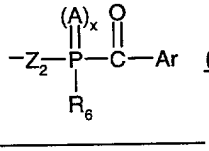
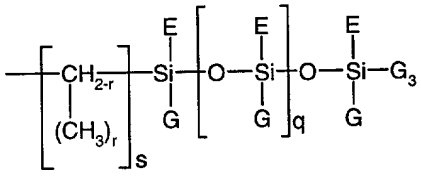
Z_1 is C_1-C_{24}alkyl, which is unsubstituted or substituted once or more than once by OR_{15}, SR_{15}, $N(R_{16})(R_{17})$, phenyl, halogen, CN, -N=C=A,  ,  , 

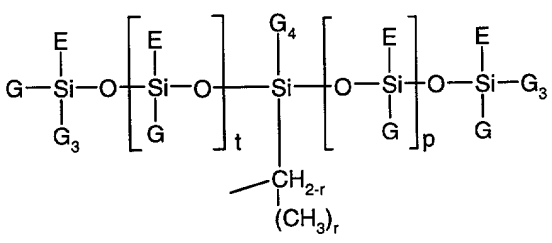
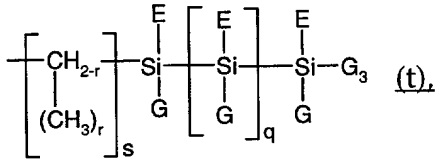
and/or  or Z_1 is C_2-C_{24}alkyl which is interrupted once or more than once by O, S or NR_{14} and which can be substituted by OR_{15}, SR_{15}, $N(R_{16})(R_{17})$, phenyl, halogen,  ,  ,  and/or  ; or Z_1 is C_1-C_{24}alkoxy, which is substituted once

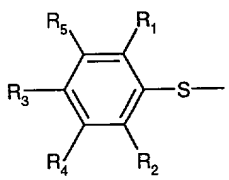
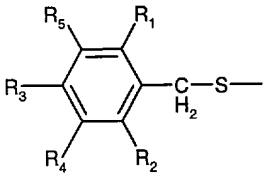
or more than once by phenyl, CN, -N=C=A,    and/or  ; or Z_1 is    or  ; or Z_1 is unsubstituted C_3-C_{24}cycloalkyl or C_3-C_{24}cycloalkyl substituted by C_1-C_{20}alkyl, OR_{11}, CF_3 or halogen; unsubstituted C_2-C_{24}alkenyl or C_2-C_{24}alkenyl substituted by C_6-C_{12}aryl, CN, $(CO)OR_{15}$ or $(CO)N(R_{18})_2$; or Z_1 is C_3-C_{24}cycloalkenyl or is one of the radicals  (f),

 (g),  (h),  (i),  (k),

 (l),  (m),  (n),

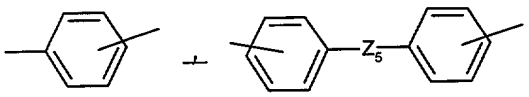
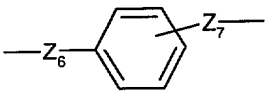
 (o),  (p),

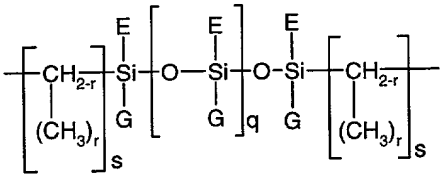
 (q),  (t),

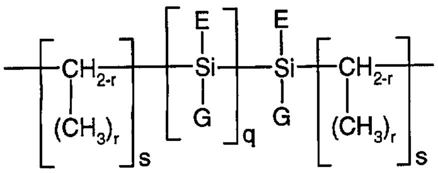

(v) or

(w); or Z_1 is C_1-C_{24}alkylthio, in which the alkyl radical is uninterrupted or interrupted once or more than once by nonconsecutive O or S, and is unsubstituted or substituted by OR_{15}, SR_{15} and/or halogen; with the proviso that Z_1 and R_6 are not identical;

A_1 is O, S or NR_{18a};

Z_2 is C_1-C_{24}alkylene; C_2-C_{24}alkylene interrupted once or more than once by O, S or NR_{14}; C_2-C_{24}alkenylene; C_2-C_{24}alkenylene interrupted once or more than once by O, S or NR_{14}; C_3-C_{24}cycloalkylene; C_3-C_{24}cycloalkylene interrupted once or more than once by O, S or NR_{14}; C_3-C_{24}cycloalkylene;C_3-C_{24}cycloalkenylene interrupted once or more than once by O, S or NR_{14}; where the radicals C_1-C_{24}alkylene, C_2-C_{24}alkylene, C_2-C_{24}alkenylene, C_3-C_{24}cycloalkylene and C_3-C_{24}cycloalkenylene are unsubstituted or are substituted by OR_{11}, SR_{11}, $N(R_{12})(R_{13})$ and/or halogen;

or Z_2 is one of the radicals

or

, where these radicals are unsubstituted or are substituted on the aromatic by C_1-C_{20}alkyl; C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH; OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, phenyl, halogen, NO_2, CN, (CO)-OR_{11}, (CO)-R_{11}, (CO)-$N(R_{12})(R_{13})$, SO_2R_{24}, OSO_2R_{24}, CF_3 and/or CCl_3;

or Z_2 is a group

(r) or

 (u);

Z_3 is CH_2, CH(OH), $CH(CH_3)$ or $C(CH_3)_2$;

Z_4 is S, O, CH_2, C=O, NR_{14} or a direct bond;

Z_5 is S, O, CH_2, $CHCH_3$, $C(CH_3)_2$, $C(CF_3)_2$, SO, SO_2, CO;

Z_6 and Z_7 independently of one another are CH_2, $CHCH_3$ or $C(CH_3)_2$;

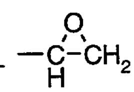
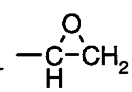
r is 0, 1 or 2;

s is a number from 1 to 12;

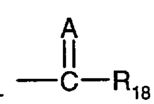
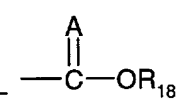
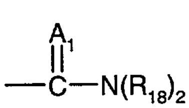
q is a number from 0 to 50;

t and **p** are each a number from 0 to 20;

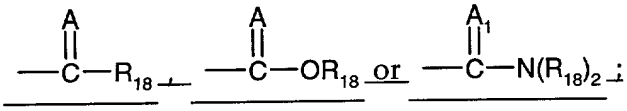
E, G, G_3 and G_4 independently of one another are unsubstituted C_1-C_{12}alkyl or C_1-C_{12}alkyl substituted by halogen, or are unsubstituted phenyl or phenyl substituted by one or more C_1-C_4alkyl; or are C_2-C_{12}alkenyl;

R_{11a} is C_1-C_{20}alkyl substituted once or more than once by OR_{15} or  ; or is C_2-C_{20}alkyl which is interrupted once or more than once by nonconsecutive O atoms and is unsubstituted or substituted once or more than once by OR_{15}, halogen or  ; or R_{11a} is C_2-C_{20}alkenyl, C_3-C_{12}alkynyl; or R_{11a} is C_3-C_{12}cycloalkenyl which is substituted once or more than once by halogen, NO_2, C_1-C_6alkyl, OR_{11} or $C(O)OR_{18}$; or C_7-C_{16}arylalkyl or C_8-C_{16}arylcycloalkyl;

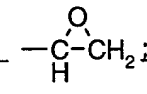
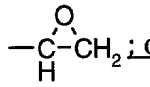
R_{14} is hydrogen, phenyl, C_1-C_{12}alkoxy, C_1-C_{12}alkyl or C_2-C_{12}alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH and/or SH;

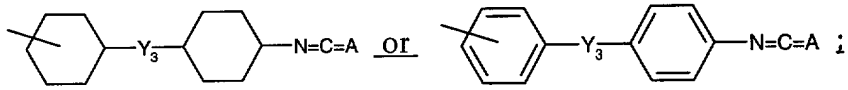
R_{15} has one of the meanings given for R_{11} or is a radical  ,  or  ;

R_{16} and R_{17} independently of one another have one of the meanings given for R_{12} or are a radical



R_{18} is hydrogen, C_1-C_{24}alkyl, C_2-C_{12}alkenyl, C_3-C_8cycloalkyl, phenyl, benzyl; C_2-C_{20}alkyl which is interrupted once or more than once by O or S and which is unsubstituted or substituted by OH;

R_{18a} and R_{18b} independently of one another are hydrogen; C_1-C_{20}alkyl, which is substituted once or more than once by OR_{15}, halogen, styryl, methylstyryl, -N=C=A or  ; or C_2-C_{20}alkyl, which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted once or more than once by OR_{15}, halogen, styryl, methylstyryl or  ; or R_{18a} and R_{18b} are C_2-C_{12}alkenyl; C_5-C_{12}cycloalkyl, which is substituted by -N=C=A or -CH_2-N=C=A and is additionally unsubstituted or substituted by one or more C_1-C_4alkyl; or R_{18a} and R_{18b} are C_6-C_{12}aryl, unsubstituted or substituted once or more than once by halogen, NO_2, C_1-C_6alkyl, C_2-C_4alkenyl, OR_{11}, -N=C=A, -CH_2-N=C=A or $C(O)OR_{18}$; or R_{18a} and R_{18b} are C_7-C_{16}arylalkyl; or R_{18a} and R_{18b} together are C_8-C_{16}arylcycloalkyl; or R_{18a} and R_{18b} independently of one another are



Y_3 is O, S, SO, SO_2, CH_2, $C(CH_3)_2$, $CHCH_3$, $C(CF_3)_2$, (CO), or a direct bond;

R_{19}, R_{20}, R_{21}, R_{22} and R_{23} independently of one another are hydrogen, C_1-C_{20}alkyl; C_2-C_{20}alkyl, which is interrupted once or more than once by nonconsecutive O atoms and which is unsubstituted or substituted by OH and/or SH; or R_{19}, R_{20}, R_{21}, R_{22} and R_{23} are OR_{11}, SR_{11}, $N(R_{12})(R_{13})$, NO_2, CN, SO_2R_{24}, OSO_2R_{24}, CF_3, CCl_3, halogen; or phenyl which is unsubstituted or substituted once or more than once by C_1-C_4alkyl or C_1-C_4alkoxy;

or in each case two of the radicals R_{19}, R_{20}, R_{21}, R_{22} and R_{23} together form C_1-C_{20}alkylene which is uninterrupted or interrupted by O, S or -NR_{14};

R_{24} is C_1-C_{12}alkyl, halogen-substituted C_1-C_{12}alkyl, phenyl, or phenyl substituted by OR_{11} and/or SR_{11};

with the proviso that R_6 and Z_1 are not identical.

as photoinitiator.